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(54) LASER MACHINING AND MECHANICAL CONTROL OF OPTICAL MICRORESONATORS

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(57) **ABSTRACT**

An apparatus and technique are used to fabricate optical microresonators. A fabrication chamber contains all fabrication materials and devices. The microresonators are fabricated from a glass preform mounted on a motorized spindle. A laser is focused onto the preform to partly or fully impinge on the preform. The laser's focus position is controlled by changing the positioning of a lens mounted on a translation stage. Piezoelectric control elements may be mounted to finished microresonators to control of nonlinear parametric oscillation and four-wave mixing effects of the microresonator, control of nonlinear optical stimulated Brillouin scattering and Raman effects of said microresonator and wideband tuning of the frequency spacing between the output modes of a nonlinear-Kerr-effect optical frequency comb generated with said microresonator.